CLAIMS

What is claimed is:

1. A method of forming a coating for an implantable device, comprising the acts of:

forming a primer on at least a portion of a surface of the implantable device; and

forming a reservoir region containing an active ingredient on at least a selected portion of the primer.

2. A coating for an implantable device produced in accordance with the method of Claim 1.

3. The method of Claim 1, wherein the primer provides an adhesive tie layer between the surface of the implantable device and the reservoir region.

4. The method of Claim 1, additionally comprising

forming a barrier layer on at least a selected portion of the reservoir region to reduce the rate at which the active ingredient is released from the reservoir region.

5. The method of Claim 1, wherein the act of forming the primer comprises:

applying a composition to a selected portion of the surface of the implantable device wherein the composition comprises a thermoplastic polymer added to a solvent; and

heating the composition applied to the selected portion of the surface of the implantable device to a temperature greater than about the glass transition

temperature and less than about the melting temperature of the thermoplastic polymer to form the primer.

6. The method of Claim 1, wherein the act of forming the primer comprises:

applying a composition to a selected portion of the surface of the implantable device, wherein the composition comprises an inorganic polymer precursor added to a solvent; and

removing the solvent to a significant elimination to form the primer.

7. The method of Claim 1, wherein the act of forming a primer comprises:

applying a composition to a selected portion of the surface of the implantable device, wherein the composition comprises a polymer added to a solvent; and

heating the composition applied to the selected portion of the surface of the implantable device to a temperature above the glass transition temperature of the polymer.

8. The method of Claim 1, wherein the act of forming a primer comprises:

applying a composition to a selected portion of the surface of the implantable device, wherein the composition comprises a prepolymer and an initiator;

exposing the composition applied to the selected portion of the surface of the implantable device to a condition which polymerizes the prepolymer.

9. The method of Claim 8, wherein the condition is exposure to UV radiation.

10. The method of Claim 8, wherein the condition is exposure to a selected temperature.

11. The method of Claim 1, wherein the primer is made from an ethylene vinyl alcohol copolymer.

12. The method of Claim 1, wherein the reservoir region is made from an ethylene vinyl alcohol copolymer.

13. A prosthesis comprising a coating for delivery of an active ingredient, wherein the coating includes:

a reservoir region containing an active ingredient; and

a primer region free from any active ingredients located between the reservoir region and the surface of the prosthesis.

14. The prosthesis of Claim 13, wherein the prosthesis is selected from a group of balloon-expandable stents and self-expandable stents.

15. The prosthesis of Claim 13, wherein the coating is made from an ethylene vinyl alcohol copolymer.

16. The prosthesis of Claim 13, wherein the primer region increases the ability of the coating to be retained by the prosthesis.

17. The prosthesis of Claim 13, wherein the primer region acts as an intermediary tie layer between a metallic surface of the prosthesis and the polymeric material from which the reservoir region is made.

18. The prosthesis of Claim 13, wherein the primer region is made form a first polymeric layer and the reservoir region is made from a second polymeric layer, the second polymeric layer being made from a different polymeric material than the first polymeric layer.

19. The prosthesis of Claim 13, wherein the active ingredient is selected from a group of actinomycin D, paclitaxel and docetaxel.

20. The prosthesis of Claim 13, wherein the active ingredient inhibits abnormal or inappropriate migration or proliferation of vascular smooth muscle cells.

21. The prosthesis of Claim 13, additionally including a barrier region located on at lease a selected portion of the reservoir region for reducing the rate at which the active ingredient is released.

22. The prosthesis of Claim 21, wherein the barrier layer is made from a polymeric material containing inorganic particles.

23. The prosthesis of Claim 13, wherein the primer region is made from a material selected from a group of polyisocyanates, unsaturated polymers, high amine content polymers, acrylates, polymers containing a high content of hydrogen bonding groups, and inorganic polymers.

24. The prosthesis of Claim 23, wherein the polyisocyanates are selected from a group of triisocyanurate, alphatic polyisocyanate resins based on hexamethylene diisocyanate, aromatic polyisocyanate prepolymers based on diphenylmethane diisocyanate, polyisocyanate polyether polyurethanes based on diphenylmethane diisocyanate, polymeric isocyanates based on toluene diisocyanate, polymethylene polyphenyl isocyanate, and polyester polyurethanes.

25. The prosthesis of Claim 23, wherein the unsaturated polymers are selected from a group of polyester diacrylates, polycaprolactone diacrylates, polyester diacrylates, polytetramethylene glycol diacrylate, polyacrylates with at least two acrylate groups, polyacrylated polyurethanes, and triacrylates.

26. The prosthesis of Claim 23, wherein the amine content polymers are selected from a group of polyethyleneamine, polyallylamine, and polylysine.

27. The prosthesis of Claim 23, wherein the acrylates are selected from a group of copolymers of ethyl acrylate, methyl acrylate, butyl methacrylate, methacrylic acid, acrylic acid, and cyanoacrylates.

28. The prosthesis of Claim 23, wherein the polymers containing hydrogen bonding groups are selected from a group of polyethylene-co-polyvinyl alcohol, epoxy polymers based on the diglycidylether of bisphenol A with amine crosslinking agents, epoxy polymers cured by polyols and lewis acid catalysts, epoxy phenolics, epoxy-polysulfides, ethylene vinyl acetate, melamine formaldehydes, polyvinylalcohol-co-vinyl acetate polymers, resorcinol-formaldehydes, urea-formaldehydes, polyvinylbutyral, polyvinylacetate, alkyd polyester resins, acrylic acid modified ethylene vinyl acetate polymers, methacrylic acid modified ethylene vinyl acetate polymers, acrylic acid modified ethylene acrylate polymers, methacrylic acid modified ethylene acrylate polymers, anhydride modified ethylene acrylate coppolymers, and anhydride modified ethylene vinyl acetate polymers.

29. The prosthesis of Claim 23, wherein the inorganic polymers are selected from a group of silane coupling agents, titanates, and zirconates.

30. The prosthesis of Claim 29, wherein the silane coupling agents are selected from a group of 3-aminopropyltriethoxysilane and (3-glydidoxypropyl) methyldiethoxysilane.

31. The prosthesis of Claim 29, wherein the titanates are selected from a group of tetra-iso-propyl titanate and tetra-n-butyl titanate.

32. The prosthesis of Claim 29, wherein the zirconates are selected from a group of n-propyl zirconate and n-butyl zirconate.

33. A coating for a stent comprising a first active ingredient and a second active ingredient, wherein the rate of release of the first active ingredient is slower than the rate of release of the second active ingredient.

34. The coating of Claim 33, wherein the coating is made from an ethylene vinyl alcohol copolymer.

35. The coating of Claim 33, wherein the coating comprises a first region having a first section containing the first active ingredient and a second section containing the second active ingredient.

36. The coating of Claim 33, wherein the coating comprises a first region containing the first and second active ingredients and a second region disposed between the first region and the surface of the stent, wherein the second region acts as an intermediary tie layer.